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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,619	08/13/2001	James G. Shanahan	D/A1413	7995

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EXAMINER

HIRL, JOSEPH P

ART UNIT	PAPER NUMBER
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2121

DATE MAILED: 10/14/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

PP9

Office Action Summary

Application No.

09/928,619

Applicant(s)

SHANAHAN, JAMES G.

Examiner

Joseph P. Hirl

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Claims 1-26 are pending in this application.
2. The claims and only the claims form the metes and bounds of the invention.
"Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP page 2100-8, col 2 lines 45-48; page 2100-9, col 1, lines 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

Claim Rejections - 35 USC § 112

3. Claims 6, 20, 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 6 references itself and in consequence, Claim 6 is indefinite. Claim 20 cites that "each degree of match is aggregated"...specification at page 29, line 1 cites "individual degrees of matches"...these are significantly different approaches rendering the claim indefinite. Claim 21 cites estimating granule feature

weights when they are aggregated as a weighted function which applies to additive models only (specification at pg 30, line 15) and since neither claim 11 nor claim 21 incorporate additive models, the claim is by consequence indefinite.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Shetty et al (US Pub 2003/0046253, referred to as **Shetty**).

Claim 1

Shetty anticipates extracting a set of features from the text object (**Shetty**, p 0005); constructing a document class fuzzy set with ones of the set of features extracted from the text object (**Shetty**, p 0006; p 0102; Examiner's Note (EN): constructing a document fuzzy set is synonymous with clusters the read data using a fuzzy logic approach); each of the ones of the features extracted from the text object having a degree of membership in the document class fuzzy set and a plurality of class fuzzy sets of a knowledge base (**Shetty**, p 0006; p 0102; EN; the set of clusters

represents the knowledge base); measuring a degree of match between each of the plurality of class fuzzy sets and the document class fuzzy set (**Shetty**, p 0006; p 0102); and using the measured degree of match to assign the text object a label that satisfies a selected decision making rule (**Shetty**, p 0006; p 0102; EN: a cluster is synonymous with label and the rule of assignment is synonymous with fuzzy set classification).

Claim 2

Shetty anticipates learning each class fuzzy set in the knowledge base (**Shetty**, p 0006; p 0102; EN: see comments of claim 1).

Claim 3

Shetty anticipates obtaining a set of class training documents (**Shetty**, p 0005); merging those training documents in the set of training documents with similar labels to create a class (**Shetty**, p 0005, Fig. 5); and computing a class fuzzy set using the class document (**Shetty**, p 0005; Fig. 5; EN: USL is compatible with the concepts of this claim; see p 2 above).

Claim 4

Shetty anticipates the set of features is extracted from the text object by: tokenizing the document to generate a word list (**Shetty**, p 0005); parsing the word list to generate the set of grammar based features (**Shetty**, p 0005); and filtering the set of grammar based features to reduce the number of features in the set of grammar based features to define the ones of the set of features extracted from the text object used to construct the document class fuzzy set (**Shetty**, p 0005; EN: to one of ordinary skill in

the art, tokenizing, parsing and filtering are synonymous with the non-parametric approach involving partitioning the unclassified data into subsets using ART).

Claim 5

Shetty anticipates the document fuzzy set is computed by: calculating a frequency of occurrence for each feature in the set of features in the text object (**Shetty**, p 0009); normalizing the frequency of occurrence of each feature in the set of features; and transforming the normalized frequency of occurrence of each feature in the set of features to define the document fuzzy set (**Shetty**, p 0009; EN: see p 2 above; checking for uncertainty and robustness and thereafter clustering equates to concern for redundancy (frequency) and related classification by fuzzy logic of p 0006).

Claims 7, 17

Shetty anticipates the degree of match between each of the plurality of class fuzzy sets and the document fuzzy set is measured using one of a maximum-minimum strategy and a probabilistic reasoning strategy based upon semantic unification (**Shetty**, p 0102; EN: fuzzy logic clustering is synonymous with probabilistic reasoning strategy (fuzzy logic) based upon semantic unification (clustering)) .

Claims 8, 18

Shetty anticipates filtering each degree of match with an associated class specific filter function to define an activation value for its associated class rule (**Shetty**, p 0102; EN: fuzzy logic defines activation methodology); identifying the activation value of the class rule with the highest activation value (**Shetty**, p 0102); each class rule having an associated class label (**Shetty**, p 0003; EN: each cluster is unique and has

an identifier or label by rule that establishes the label); and assigning the class label of the class rule with the highest identified activation value to classify the text object into one of the plurality of class fuzzy sets (**Shetty**, p 0102; EN: such is classification).

Claims 9, 19

Shetty anticipates learning each associated class specific filter function (**Shetty**, p 0102; EN: the filter function is the methodology of assigning a value to the degree of match and is anticipated by fuzzy logic methodology).

Claim 10

Shetty anticipates the decision making rule is used to identify one of a maximum value, a threshold value, and a predefined number (**Shetty**, p 0071).

Claim 11

Shetty anticipates extracting a set of granule features from the text object (**Shetty**, ps' 0005, 0073, 0094); constructing a document granule feature fuzzy set using ones of the granule features extracted from the text object (**Shetty**, ps' 0006, 0073, 0094) ; each of the ones of the granule features extracted from the text object having a degree of membership in a corresponding granule feature fuzzy set of the document granule feature fuzzy set and a plurality of class granule feature fuzzy sets of a knowledge base (**Shetty**, ps' 0006, 0073, 0094; 102) ; computing a degree of match between each of the plurality of class granule feature fuzzy sets and the document granule feature fuzzy set to provide a degree of match for each of the ones of the granule features (**Shetty**, ps' 0073, 0094; 0102); aggregating each degree of match of the ones of the granule features to define an overall degree of match for each feature

(**Shetty**, p 0073; EN: granularity is set by the threshold value and lower such value increases clustering and lowers aggregating); and using the overall degree of match for each feature to assign the text object a class label that satisfies a selected decision making rule (**Shetty**, ps' 0073, 0102).

Claim 12

Shetty anticipates filtering the granule features extracted from the text object to define the ones of the granule features used to construct the document granule feature fuzzy set (**Shetty**, ps' 0006, 0073, 0094, 0102; EN: feature fuzzy sets are in essence scaled by the degree of granularity).

Claim 13

Shetty anticipates the filtering of the granule features is based upon one of Zipf's law and semantic discrimination analysis (**Shetty**, ps' 0006, 0073, 0094, 0102; EN: filtering is fuzzy logic methodology, granularity is scaling, and semantic discrimination analysis is clustering) .

Claim 14

Shetty anticipates (**Shetty**, ps' 0006, 0073, 0094, 0102; EN:granularity or scaling will directly impact the number of fuzzy sets and the quantity of clusters or labels)

Claim 15

Shetty anticipates wherein the ones of the granule features that are used to construct the document granule feature fuzzy set are reduced to one of a predefined threshold number of granule features and range of granule features (**Shetty**, ps' 0006,

0073, 0094, 0102; EN: granularity setting a threshold typically effects the full set of features...quantity and range).

Claim 16

Shetty anticipates learning each granule fuzzy set in the knowledge base (Shetty, ps' 0006, 0073, 0094, 0102; EN: such is the nature of fuzzy logic and the knowledge base represented by clustering).

Claim 22

Shetty anticipates a knowledge base for storing categories represented by fuzzy sets and associated class labels (Shetty, ps' 0006, 0102; EN: knowledge base is represented by clusters); a pre-processing module for representing extracted features from the text object as a document fuzzy set (Shetty, ps' 0003, 0006, 0102; Fig. 5); and an approximate reasoning module for using a measured degree of match between the fuzzy sets in the knowledge base and the document fuzzy set to assign the associated class labels of those categories that satisfy a selected decision making rule (Shetty, ps' 0003, 0006, 0102; Fig. 5; EN: approximate reasoning module is the software system, measured degree is Shetty's distance and clusters are synonymous with labels).

Claim 23

Shetty anticipates the fuzzy sets are granule fuzzy sets (Shetty, ps' 0006, 0073, 0094, 0102).

Claim 24

Shetty anticipates the fuzzy sets are class fuzzy sets (**Shetty**, ps' 0006, 0102; EN: given a cluster that represents a grouping of related items, that methodology that is so related has the feature of class...fuzzy sets have the feature of class).

Claim 25

Shetty anticipates a learning module for learning the class fuzzy sets (**Shetty**, ps' 0005, 0102).

Claim 26

Shetty anticipates a training database for creating a plurality of class documents (**Shetty**, ps' 0002, 0005, 0102); and a validation database for validating learned class fuzzy sets in the knowledge base (**Shetty**, ps' 0002, 0005, 0102; EN: to one of ordinary skill in the art Shetty's training would include validation which is nothing more than partitioning the initial training set to include a special set to be used to test the trained system to insure the trained system is "ready" and not over trained or for that matter, under trained).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

MacCuish et al USP 6,625,585

Naito et al US Pub 2002/0065845

Hennessey et al USP 6,483,938

Duvoisin, III et al USP 5,835,901

7. Claims 1-26 are rejected.

Correspondence Information

8. Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner, Joseph P. Hirl, whose telephone number is (703) 305-1668. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anil Khatri can be reached at (703) 305-0282.

Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

or faxed to:

(703) 746-7239 (for formal communications intended for entry);

or faxed to:

(703) 746-7290 (for informal or draft communications with notation of "Proposed" or "Draft" for the desk of the Examiner).

Hand-delivered responses should be brought to:

Art Unit: 2121

Receptionist, Crystal Park II

2121 Crystal Drive,

Arlington, Virginia.

Joseph P. Hirl



October 2, 2003

Ramesh Patel
RAMESH PATEL
PRIMARY EXAMINER 10/6/03
for Amal Khafri